

half of the body is most commonly affected because of the common association of atherosclerosis and a propensity for decreased flow states. In decreasing order the femoral, popliteal, iliac arteries and aorta will be involved. Acute arterial thrombosis in the arms or neck (excluding a cerebrovascular accident) is unusual and often associated with trauma.

The exclusion of an embolus is therapeutically important because standard methods of embolectomy, though relatively safe and uncomplicated, are usually futile when acute thrombosis is present. An unsuccessful embolectomy in such a patient should alert the surgeon to possible acute thrombosis. When further attempted in these patients it may unnecessarily jeopardize limb and life. The best results have been achieved with emergent arterial reconstruction, preferably with a bypass procedure or, if the thrombosis is localized, endarterectomy. With this aggressive approach, limb salvage can be achieved in over 90 percent of cases and the rate of survival increased over that achieved with lesser procedures.

LAWRENCE A. DANTO, MD

REFERENCES

- Danto LA, Fry WJ, Kraft RO: Acute aortic thrombosis. *Arch Surg* 104:569-572, Apr 1972
Fairbairns JF II, Chap 13, In Fairbairns JF II, Juergens JL, Spittell JR Jr (Eds): *Peripheral Vascular Diseases*. Philadelphia, WB Saunders Co, 1972, pp 254-270

Aortoiliac Steal Syndrome

KOUNTZ, LAUB AND CONNOLLY described a new syndrome in 1966 in which blood is shunted away from the mesenteric arterial bed into disobliterated or bypassed peripheral arteries. This stealing of blood from the mesenteric circulation can result in gangrene of the bowel after a reconstructive operation on the aortoiliac vessels. This syndrome was called the aortoiliac steal syndrome.

Animal experiments by the original authors showed that lumbar sympathectomy or iliac bypass grafting steals blood from the superior mesenteric artery in an inverse relationship to the amount of new blood diverted peripherally by the procedure.

Such stealing is normally tolerated by the mesenteric circulation unless it is severely compromised. Preoperative compromise of the mesenteric circulation is identified by the presence of an en-

larged central anastomotic artery on aortography. An enlarged central anastomotic artery always means pronounced stenosis or obstruction of two of the three mesenteric takeoff vessels.

A number of clinical reports of gangrene of the bowel secondary to the aortoiliac steal syndrome have appeared since 1966 and underscore the need for understanding this syndrome by those performing peripheral vascular surgical procedures.

JOHN E. CONNOLLY, MD

REFERENCES

- Kountz SL, Laub DR, Connolly JE: Aortoiliac steal syndrome. *Arch Surg* 92:490, Apr 1966
Lancaster JR, Payan HM, Jacobs WH, et al: Aortoiliac steal syndrome and disease of the gastrointestinal tract. *Arch Surg* 94:172, Feb 1967
Williams LF, Kim RM, Tompkins W, et al: Aortoiliac steal: A cause of intestinal ischemia. *N Engl J Med* 278:777, Apr 4, 1968
Trippel OH, Jurayj MN, Midel AI: The aorto-iliac steal. *Ann Surg* 175:454, Mar 1972
Connolly JE, Stemmer EA: Intestinal gangrene as the result of mesenteric arterial steal. *Am J Surg* 12:197-204, Aug 1973

Resection of Aortic Arch Aneurysms

UNTIL RECENTLY, resection of aortic arch aneurysms with prosthetic graft replacement was a hazardous undertaking, owing largely to the complicated perfusion apparatus that has been used for circulatory support during operation. To provide complete perfusion of vital organs, inflow catheters must be placed in the innominate artery, the left carotid artery, the left brachial artery and a femoral artery. The problems of adjusting pressures and flow rates in these multiple infusion lines have generally resulted in uneven perfusion of various portions of the circulation with resulting ischemic damage.

Recently the success of the technique of total body hypothermia and circulatory arrest in dealing with complex congenital heart lesions in infants has suggested that with modification the technique might be applicable to the adult. In adult dogs if the brain temperature is less than 20°C, periods of circulatory arrest up to one hour are well tolerated. Based on these findings a technique has been developed which allows replacement of the aortic arch with the same operative risk as replacement of any other portion of the intrathoracic aorta.

Our present technique for aortic arch replacement is as follows. Following induction of anesthesia, surface cooling lowers the patient's temperature to 30°C. A median sternotomy with an